Amendments to the Claims

This listing of claims replaces all previous versions and listings of the claims.

Listing of Claims:

1. (Previously presented) A device for measuring vibration in an article having a rotating member, the device comprising:

a motion sensitive transducer attachable to the article comprising an output producing a time domain analog signal in response to the vibration;

an analog-to-digital data acquisition member comprising an input connected to the transducer output for sampling the transducer signal and comprising an output producing a time domain digital signal from the sampling;

an optic sensor, responsive to a target feature on the rotating member, adapted to detect an instantaneous speed of the rotating member and trigger the data acquisition member to begin sampling when the rotating member is rotating; and

a processor comprising an input connected to the data acquisition member output for translating the time domain digital signal to a frequency domain digital signal and determining the magnitude and phase of said frequency domain digital signal at a frequency associated with the instantaneous speed of the rotating member.

2. (Previously presented) The device of claim 1 wherein the processor further determines whether said magnitude of the frequency domain digital signal greater than a

preselected threshold.

3. (Previously presented) The device of claim 1 wherein the instantaneous speed is associated with a transient start up state of the rotating member and is less than an operating speed of the rotating member.

4. (Original) The device of claim 1 comprising two transducers producing simultaneous vibration signals from different planes.

5. (Original) The device of claim 4 wherein the transducers are positioned orthogonally.

Claim 6 (Cancelled).

7. (Previously presented) The device of claim 1 wherein the processor performs a Fourier transform in translating the digital signal from a time domain to a frequency domain.

Claims 8-20 (Cancelled).

21. (Currently amended) A device comprising:

a ~~first~~ piezoelectric transducer which produces an analog signal in response to mechanical vibration of said transducer induced by a member rotated at an

instantaneous speed less than an operational speed of said member;

an analog-to-digital data acquisition member which samples the analog signal to produce a corresponding digital signal therefrom;

a second transducer which detects said instantaneous speed of the rotating member; and

a processor which processes the digital signal in relation to a frequency associated with said instantaneous speed.

22. (Previously presented) The device of claim 21 wherein the second transducer comprises an optic sensor responsive to a target feature of the rotating member, and wherein the optic sensor is adapted to trigger the data acquisition member to begin sampling when the rotating member is rotating.

23. (Previously presented) The device of claim 21 wherein the processor further determines whether a magnitude of the digital signal at a frequency associated with the instantaneous speed of the rotating member is greater than a preselected threshold.

Claim 24 (Cancelled).

25. (Currently amended) The device of claim 21 wherein the piezoelectric transducer is characterized as a first transducer which produces a first analog signal along a first plane, wherein the device further comprises a third transducer that produces a second analog signal along a second plane, and wherein the analog-to-digital acquisition device

samples the first and second analog signals.

26. (Previously presented) The device of claim 25 wherein the first and third transducers are positioned orthogonally.

27. (Previously presented) The device of claim 21 wherein the processor further translates the digital signal to a frequency domain digital signal and determines the magnitude and phase of the frequency domain digital signal at a frequency associated with the instantaneous speed of the rotating member.

28. (Previously presented) The device of claim 27 wherein the processor reduces erroneous vibration readings by filtering the frequency domain signal.

29. (Previously presented) The device of claim 21 wherein the rotating member is a data storage surface for a data storage device having an associated data transducer to transduce stored data from said surface, and wherein the instantaneous speed is a speed below which the data transducer can successfully transduce said stored data.

30. (Previously presented) The device of claim 21 wherein the rotating member comprises a magnetic storage disc.

31. (New) A device comprising:

a first transducer which produces an analog signal in response to mechanical

vibration of a rotating member;

an analog-to-digital data acquisition member which samples the analog signal to produce a corresponding digital signal therefrom;

a second transducer which detects an instantaneous speed of the rotating member; and

a processor which translates the digital signal to a frequency domain digital signal and determines the magnitude and phase of the frequency domain digital signal at a frequency associated with the instantaneous speed of the rotating member.

32. (New) The device of claim 31 wherein the first transducer produces a first analog signal along a first plane, wherein the device further comprises a third transducer that produces a second analog signal along a second plane, and wherein the analog-to-digital acquisition device samples the first and second analog signals.

33. (New) The device of claim 31 wherein the first transducer comprises a piezoelectric transducer.

34. (New) The device of claim 31 wherein the second transducer comprises an optic sensor responsive to a target feature of the rotating member, and wherein the optic sensor is adapted to trigger the data acquisition member to begin sampling when the rotating member is rotating.